NUCLEUS AND SATELLITE IN NOMINAL SYNTAGMATICS

NIMROD BARRI

SUMMARY

A subordinative construction is one with a nucleus and (a) satellite(s). This kind of analysis is mostly limited to traditional 'syntax', i.e., to relations between 'words', not within them; thus derivatives were only very recently included. Nor is it customary to apply this analysis to the construction article + noun. Yet the latter constructions have sometimes been described as subordinative, with contradicting results. The accepted criterion for a nucleus — the ability to stand alone — is inapplicable to 'morphological units' or other closed units (bilateral dependences); attempts to apply it indirectly were only partly successful. This paper proposes a new, though related, criterion: the nucleus is the part which is responsible for the appurtenance of the construction to a given substitution-class. We thus can show that most nominal derivational suffixes are nuclei of their words, and that the article must in several languages be considered the nucleus of its noun.

0. NUCLEUS AND SATELLITE

The domain of endocentric constructions (or endocentric syntagms) is conveniently divided into subordinative constructions and coordinative ones. The distinction ENDOCENTRIC-EXOCENTRIC outside the domain of compounds is that of Bloomfield (1935: 195) and his successors, but is found with others, e.g., Martinet (1967: §4-34). There are other opinions, however, e.g., that of Frei (1968b: 48f.), who almost does away with the distinction, showing some of Bloomfield's classic exocentric constructions to be actually endocentric. In this paper I shall stay within the Bloomfieldian view, reserving its discussion for later.

As for subordinate constructions: they are thus defined by Seiler (1960: 6): "Um Unterordnung zu erweisen, genügt es zu zeigen, dass einer der Termini zur gleichen Substitutionsklasse gehört wie das ganze Syntagma." Bloomfield, the first to speak of form-classes, has the same definition (1935: 184); similarly Frei (1956: 161; 1968b: §32) and most other theoreticians.

Following an exhaustive terminological discussion, Seiler decides on *Nukleus* for the part belonging to the same form-class as the whole construction. The operation needed to identify the nucleus is called REDUCTION, SUBSTITUTION, or TRANSFORMATION (1960: 10); the other part he calls *Satellit*.[1] It is implied in this terminology that there are always only two terms in such a construction. This was in fact recognised in the analysis of Indo-European compounds in the 19th century (see below) and was since reaffirmed by Bloomfield's immediate constituents analysis (1935: 161) and by others (e.g., Benveniste, 1967: 16).

The terms nucleus and satellite are not incidental. They were taken from the domain of syllables: Seiler argues that a consonant (satellite) cannot stand alone in a syllable, whereas a vowel (nucleus) can.[2] The same would hold good for a subordinative construction: the nucleus is said to represent it alone, whereas the satellite presupposes the other term.

1. SOME DIFFICULTIES

1.1 What are the constructions usually treated as having a nucleus and a satellite? Most research seems to have been centred on noun phrases, including a great deal of work on nominal compounds (e.g., Jacobi, 1897; Brugmann, 1905-06: 60ff.; Kuryłowicz, 1935: 217ff.; Bloomfield, 1935: 202ff.; Schwyzer, 1959: 425ff.; Frei, 1956; Seiler, 1960: 10ff.; Benveniste, 1967). That is why I will limit the scope of the present paper too to the domain of nominal expressions.

Until about 15 years ago, a certain number of satellites to nouns used to be described: a few kinds of adjectives, relative clauses, pronouns or nouns, etc. What was conspicuously lacking were two constructions: (1) noun + article, and (2) nominal derivatives. To this day it seems to be generally assumed that a noun serves as nucleus for its article and that the stem plays the same role for its derivational affix. For this view one can cite Martinet, who classes the article among the *modalités* of the noun (1967: 119f.). As for derivatives, he goes as far as declaring that "Composition et dérivation ne sont pas expansion" (*ibid.*, title of §4-34, but he does admit the possibility of endocentric compounds and even derivatives). For many others the assumption that the noun is the nucleus here was

[1] The terms NUCLEUS and SATELLITE were already used in these significations in Pittman (1948: 275) who cites Pike as the source for NUCLEUS.

[2] The same view in Hjelmslev (1961: 27) who calls this phenomenon SELECTION. For further discussion see below §1.5. For the syllable see also K. L. Pike and E. V. Pike (1947).

so strong that they have not tried to present a full proof for it, the way Seiler did for the construction adjective + noun in German (1960: 6f.).[3]

1.2 The basis for this assumption seems to lie in another assumption, namely, that a noun can stand without an article, whereas the reverse is impossible. In the same way, one could say that a stem for a derivative can form an independent word, but the affix cannot. It is typical for this way of thinking that compounds were considered legible for nucleus-satellite analysis: in many cases their parts RESEMBLE whole words which presumably can 'stand alone'.

This reasoning seems to me totally erroneous. In fact, the resemblance of compound-parts to words is far from complete. In many languages these parts have special forms according to their place *in initio compositi* or *in fine compositi*. They are stems, not words. Moreover, many compounds have at least one part which does not resemble any existing independent word (Jacobi, 1897: 5ff.). This is the case of Gr. *hippódamos* 'horse-tamer' and its likes, where the second part *-damos* is a nominal element with verbal affinities nowhere to be found as a word (*Relativ-partizip* in Jacobi, 1897: 21).

The same is true for derivatives. Hjelmslev remarks (1961: 27) that "the structure of a language may be such that a word-stem can appear both with and without derivational elements. Under this condition, there is then selection[4] between the derivational element and the stem." I should say that this could be right providing the addition of the derivational element does not change the form-class to the stem (see below §1.3); otherwise we cannot say that it is 'the same element'. Hjelmslev adds that "From a more universal or general point of view there is always selection, in that a derivational element necessarily presupposes a stem but not *vice versa*." This I consider a very unhappy statement, for a stem *qua* stem presupposes an affix no less than the affix presupposes a stem. Otherwise

[3] De Groot too (1949: 94) puts the Dutch articles *de*, *het*, *'n* under "substantief met deiktische bepaling" [substantive with deictic determination] without proof, arguing (1949:148) against "conventional grammar" that "determination" (*bepaling*; our SATELLITE) is not to be used semantically but syntactically, hence it includes articles too. De Groot's treatment of *bepaling* presents some interesting insights, especially concerning nuclearity of prepositions and conjunctions (1949:112). (I am obliged to Prof. H. J. Polotsky for drawing my attention to this book and to its reviews by Bazell and Collinson.) For a much more careless presentation see Pittman (1948), who gives a 'codification' of many implicit analysis habits. This "much misunderstood" (Joos, 1957: 278) paper contains no less than 10 "criteria which probably serve as the basis for most judgments of relative rank that have been tacitly invoked" (1957:275).

[4] Hjelmslev's more general term: DETERMINATION (1961: 41).

it would not be a stem, but an independent word (as far as words are independent of their environments).

1.3 Let us take for example the French word *lavage* 'a washing', where we can distinguish between a suffix *-age* and a stem *lav-*, which resembles some independent words in the inflection of the verb *laver* 'wash': the singulars *je lave*, *tu laves*, *il lave*, the imperative *lave!* etc. But this resemblance is only superficial. In fact, *lave!* should be considered as *lave* + Ø, the Ø standing for 'singular' in opposition with *lavez!*, *lavons!*. Similar considerations are to be given to *je lave* etc. Moreover, what can we do with *apprentiss-age*, where the corresponding verb has in the singular a dissimilar stem: *j'apprends*, *apprends!* etc.?

As a matter of fact, even if we took *lav-* to be the 'more independent part', it would be no help for indentifying the nucleus, for this would CONTRADICT the fact that *lav-* is a verbal stem, belonging to another form-class than *lavage*, hence cannot be its nucleus. Such reasoning led Martinet (1967: 132) to conclude that *lavage* was an 'exocentric derivative'. We shall soon see (§2.2) that no such notion is necessary, providing we are willing to leave aside ontological convictions like that of the nuclearity of the 'lexeme' or stem.

1.4 We must posit then that the parts in certain constructions presuppose each other (or some other element from the same form-class), no one being able to stand alone. This is the case with our stems and affixes as well as with compound-parts. We shall see below that a noun is perhaps as bound to its article as the article is to its noun. The phenomenon is further observed between stems and their endings, for the stem 'needs' the ending in order to be an independent word in the same way that the ending presupposes the stem. We shall call this kind of relation, with P. L. Garvin (1972: 70) BILATERAL DEPENDENCE. Hjelmslev (1961: 33-41) terms this INTERDEPENDENCE. Frei has the same notion, calling it *dépendance réciproque* (1968a: 65).[5]

1.5 It would be interesting to note that even in the domain of the syllable, whence the terms NUCLEUS and SATELLITE were taken (above §0) there is no universal trait which permits us to identify the 'nucleus' in the sense of 'an element which can stand alone'. Seiler's (and Hjelmslev's) statement

[5] Frei limits the phenomenon to morphology; but we shall soon see that it also exists within the syllable and, on the other hand, between 'words' (below §3.2). Level restriction, then, is unnecessary here, as it is in most other phenomena.

that the vowel constitutes such an element is an aprioristic one: it is based on the 'universal' properties (sonority etc.) of vowel as against consonant. Only it proves to be true for some languages, false for others There are languages where a syllable never consists of a vowel alone, but always of a consonant AND a vowel (sometimes with another consonant).[6] This is the case with some of the Semitic languages, including Classical Arabic (Wright, 1955: §§24-26; Haywood and Nahmad, 1962: §9; Brockelmann, 1908: I, 61-71). In this case, if we wish to determine the syllabic nucleus, we must forsake the technique of reduction (§0 above), seeking some other criterion. This will be true not only for syllables but, as we hinted before, for all kinds of BILATERAL DEPENDENCES. In what follows I shall examine one such technique and present my own solution.

2. DERIVATIONAL AFFIXES AS NUCLEI

The analysis of (endocentric) compounds into nucleus and satellite is, as we mentioned above, *chose acquise*. Derivatives, however, have only recently begun to receive an analogous treatment.

2.1 A beginning is already to be seen in Bally (1950: §387), who treats (Indo-European) suffixes as normally *déterminés* (i.e., nuclei), but points also at the different status of the *suffixes appréciatifs* (diminutives etc.; Bally, 1950: §399). Bally's criterion for what we call nuclearity consists in paraphrasing the derivative into a *groupe syntaxique* (e.g., *lavage* = 'action de laver'). Frei (1929: 176-77) had had the same position, only his ~~very~~ very short formulation had not provided full explanation. Their view remained rather isolated for a long time and seems to have had no real influence outside the Geneva School.

An echoing idea is to be seen in Marchand (1960). Describing English derivation, Marchand uses DETERMINATUM (= nucleus, apparently from a semantic point of view) and DETERMINANS (= satellite, again semantically). Unfortunately, he uses no formal technique to discover what part of a derivative constitutes its nucleus. Moreover, his treatment is not always consistent: he does declare (1960: 174) that the characteristic role of an affix is to be a "determinatum" (examples *ibid.*, §§2.1.1-2.1.3, 2.1.5), considering the *basis* (= stem) to be "determinans" of the affix (*ibid.*,

[6] The reverse phenomenon, that of 'syllabic consonants', does not invalidate Seiler's view: phonetically such a consonant may always be accompanied by a (reduced) vowel, constituting a phonetic nucleus.

§2.1.1). But a few lines later the basis is identified with the "determinatum", leaving the reader confused.

An interesting result on similar lines of thinking is that of Gauger. On the basis of semantic-logical criterions he shows (1968) that in Spanish *-azo* constitutes two distinct suffixes. One, meaning 'big', is a determinans of the nominal stem: *martillo* 'hammer': *martillazo* 'a big hammer'. The second *-azo* means 'blow, stroke' and serves as determinatum to its stem: in *martillazo* 'hammer-stroke' *martill-* determines *-azo*, not the other way round. It is to be regretted that, apart from some remarks on augmentative and diminutive suffixes as determinantia, Gauger does not draw more general conclusions from the remarkable *-azo* minimal pair.

In a very short article published in the same *Festschrift* as Gauger's, Frei (1968a) tries to prove that the tense-mode ending of a finite verb constitutes the *noyau* for the verbal stem. (I mention this contribution even if it does not concern nouns, because of its technique for isolating 'morphological' nuclei.) Frei says that since the technique of reduction is valid only in syntax, not in morphology (see note 5 above), we must apply "critères indirectes" (1968a: 66): in *gagnait* he suggests substitution of an "independent mode morpheme" such as *devait*, *voulait* etc. for the bound morpheme *-ait*, since these belong to the same form-class. Since *devait gagner* can be reduced to *devait*, but not to *gagner*, it must have *devait* as a nucleus.[7] It follows indirectly that *-ait* too is nucleus of its *gagnait*.

I do feel Frei is right in his claim, but I cannot subscribe to his method of proof. For example, what technique should we use in languages where no periphrastic expressions with the infinitive (*devait gagner*) are to be found? Such are, e.g., Arabic, Modern Greek and Albanian (Tosk dialect). Besides, I maintain that *devait* as independent verb is a different entity from the auxiliary *devait*, for the latter does not have the same form-class of tenses, nor the same meaning as the former. On nominal derivatives a short paragraph is to be found in Frei's summarizing article (1968b: §3.32) where he considers, e.g., *-ier* in *banquier* to be the nucleus of its stem, calling the suffix 'non operational class' because of its irreducibility. No detailed treatment is given.

2.2 Sharp linguistic sense made the above mentioned scholars consider most nominal stems as satellites of their derivational affixes, even though the bilateral dependence holding between them did not allow testing this by reduction. Frei's attempt to use indirect reduction as formal proof for

[7] For a similar view of the auxiliary verb, see De Groot, 1949: 116 ff.

the nuclearity of the suffix has, as we saw, some serious drawbacks. We need therefore to look for some other solution.

One should not forget that reduction is nothing more than a technique, devised to check an essential characteristic of the nucleus: the belonging to the same form-class as the whole construction. Turning now anew to that essential characteristic I suggest the following: a nucleus is the part which is 'responsible' for the belonging of the whole construction to a given form-class; that is, responsible for its syntactic behaviour.[8] The technique needed in the case of bilateral dependences will therefore consist in keeping one part fixed while changing (substituting) the other part of the construction, then reversing the operation. We shall thus see which substitution changes the class of the whole. This procedure may be called CONTROLLED SUBSTITUTION.

In a way, this is what we do to identify the parts of other linguistic entities, where they are multilaterally dependent on each other. This is the case with all instances of fusion (amalgam, cumul), e.g., with phonemes. Generally a phoneme contains a few relevant features at the same time. We cannot have one without the others. To determine the features we therefore keep all of them unchanged, changing only one at a time: if the result is another phoneme than the one treated, then the changed feature is relevant, i.e., exists linguistically. For an analogical analysis of morphological categories in the Latin ending *-a* (nominative feminine singular) see Seiler (1960: 45).

Let us take again our example of §1.3 above: the word *lavage* in French. In the first operation of our technique we try to substitute for the stem *lav-* other stems, e.g., *cir-*, *marchand-*, etc., obtaining *cirage*, *marchandage* etc. What concerns us here is that ALL the new words thus formed belong to the same form-class as *lavage*. (We may call it a subclass of the class of nouns in French.)

In the second operation we replace *-age* by other suffixes liable to be found with such a stem as *lav-*: *lav-erie*, *lav-able*, *lav-ons*[9] etc. Unlike our former result, some of the words here may belong to a DIFFERENT form-class than *lavage*.

Conclusion: it is the suffix which makes the whole construction *lavage* belong to its form-class. The stem has nothing to do with it. The suffix

[8] A very similar approach is to be found in Bazell, 1952: 68: "Subordination means that one unit of a syntagm dominates another, i.e. that the functions of the whole syntagm are governed by the function of one unit .... In *tall trees* ... it is the substantive which alone decides when the syntagm is permissible."

[9] The personal ending *-ons* is at the same time a derivational affix, making *lav-* a verbal stem here.

is responsible not only for the word being a 'noun'; it also makes it an 'action noun' (differing in syntactic behaviour from other nouns) and a 'masculine'. These properties of the suffix, especially the last one, were well known in comparative Indo-European linguistics for a long time, but no conclusions were drawn from it as to its eventual nuclearity. It is now clear that the unity of the WORD has always been a psychological block for such an analysis. But, as a matter of fact, there is no reason why the status of *-age* should differ *a priori* from that of its parallel element *action* in the periphrasis *action de laver*, where it is acceptedly the nucleus.

2.2.1 One should not, on the basis of the preceding paragraph, jump to the conclusion that all French (or other) suffixes are nuclei by definition. This should naturally be verified empirically in each case. A superficial check of all normal-style nominal derivatives listed in Grevisse (1955: 80-84) shows indeed that the great majority of French suffixes are nuclei, i.e., responsible for the derivative's form-class:

Noun derivatives: *-ade*, *-age*, *aison*, *-ière*, *-eur* (f.), *-eur* (f. *-euse*), *-té*, *-ure*, etc.

Adjective derivatives: *-able* (*-ible*), *-ain*(*e*), *-ant*(*e*), *-é*(*e*), *-eux* (f. *-euse*), *-if* (*-ive*), etc.

Only in a small group of diminutive derivatives[10] does the suffix constitute a satellite of the stem, the latter being the nucleus. To prove this it suffices to note that a French substantive remains a substantive even after the addition of a diminutive-suffix of that small group, and *mutatis mutandis* for the adjective. No one of these suffixes, however, can be said to be responsible for the form-class of its word — it only adds 'diminution' to the substantive, adjective or even verb, according to the stems:

	SUBSTANTIVES	ADJECTIVES
-let	*marteau* : *martelet*	*aigre* : *aigrelet*(*te*)
	oiseau : *oiselet*	*maigre* : *maigrelet*(*te*)
	goutte : *gouttelette*	
-et	*jardin* : *jardinet*	*aigre* : *aigret*(*te*)
	maison : *maisonnette*	*propre* : *propret*(*te*)
		long : *longuet*(*te*)

[10] Cf. Gauger, 1968 (with references on p. 94 note 4), mentioned above §2.1; Marchand, 1960: §2.1.1 and p. 174.

-ot	*Pierre* : *Pierrot*	*vieux* : *vieillot*(*te*)
	frère : *frérot*	*pâle* : *pâlot*(*te*)
	main : *menotte*	

What is interesting is that the same suffixes, which do not bear the mark of either substantive or adjective, can even be the satellites of verbs. These are the 'diminutive verbs' in *-eler*, *-eter*, *-oter* (Grevisse, 1955: 85).

Again, one should not rely on the suffix being 'a diminutive' for knowing its status. French shows two[11] suffixes, augmentative *-on* and diminutive *-ette*, which are nuclei of their words, making them masculine and feminine substantives respectively: *cruche* : *cruchon*; *vinaigre* : *vinaigrette* etc.[12]

3. THE ARTICLE AS NUCLEUS

3.1 Among the very few who have tried recently to subject bilateral dependences to a linguistic test, Henri Frei may be considered a pioneer (above §2.1). As to the construction article + noun he stands practically alone. Here again the technique used by Frei may be called INDIRECT REDUCTION. Taking the phrase *this tooth* (1956:164) he showed first ~~that~~ that it is reducible to *this* but not to *tooth*, e.g., in

This tooth is decayed
This is decayed
**Tooth is decayed*

It follows therefore that *this* is the nucleus of *this tooth*.[13] The next step is to show that *the* is nucleus in, e.g., *the milk*, *this* and *the* being supposedly of the same form-class.

Again, I am of the opinion that *the* IS actually the nucleus in the above example, but I cannot accept the method of proof:

3.1.1 There may be languages where no such substitution (*this* : *the*) is

[11] I have not included *-eau*, which seems no longer productive, i.e., analyzable.
[12] The status of *-ette* is complicated, for it serves at the same time as feminine to the satellite suffix *-et* and as the nuclear suffix *-ette* which has no masculine and is not always diminutive. These are really two distinct suffixes.
[13] In fact, Frei dedicates more space (1956: 164-65) to prove the same thing for Bloomfield's example *this milk*, wishing to reduce *this milk jug* to *this jug*. But the example is not suitable, since *this* in *this milk jug* is not immediately connected with *milk* but with *milk-jug*, so that substitution of *this milk* is out of the question for reasons of constituent structure. The same is true for the example *a milk diet*. In connection with a mass noun, *this* may have an altogether different status than with countables like *tooth* (see below §3.2.2.2 end).

feasible, e.g., Greek οὗτος (or ὅδε, ἐκεῖνος) does do not replace the article in οὗτος ὁ ἀνήρ but is added to it. The same situation is met with in Arabic and Hebrew.

3.1.2 We cannot be sure that *this* in *this tooth* is the same linguistic sign as *this* occurring substantively, unless we prove it has the same *valeur*. Linguistic value does not depend, according to Saussure (1915:157ff.) on either *singifiant* or *signifié* of the sign in question, but on the identity and number of the other members in its substitution class.[14] It would take us too long to go into exact detail here, but a glance at what may be called the class of 'adnominal determinatives' as against that of 'pronominals' suffices to show their divergent constitution. In English those classes would contain approximately the following (singulars only; cf. Palmer and Blandford, ²1938:109-66):

PRONOMINAL	ADNOMINAL
This (*is decayed*).	*This* (*tooth is decayed*).
That	*That*
Either	*Either*
Neither	*Neither*
Another one	*Another*
Someone	*Some*
Any one	*Any*
No one, None	*No*
Every one	*Every*
He, She, It	—
—	*The*

Only the first four items appear in both classes without change. Of the rest, five have divergent forms (*another one* : *another* etc., where, by the way, *one* seems to be the 'substantivising' nucleus). The last two, adnominal *the* and pronominal *he*, *she*, *it* have no counterpart in the other class. Formally, then, *this* represents two HOMONYMS belonging to two different form-class. Each such hononym has a different linguistic value. Consequently we cannot use the reduction *this tooth* : *this* in order to prove nuclearity of *this*; much less can we employ it to show the nuclearity of the definite article.

In French the case is even harder for the technique of indirect reduc-

[14] For this see my "Adjectifs antéposés et adjectifs postposés comme deux signes linguistiques différents", published in *Folia linguistica* VII: 3-4 (1973).

tion. Since *ce, cette* are never substatives, Frei tries (1956: 164; 1968b: 52) to show by the substitution

La feuille suffit
Une feuille suffit
Une suffit

that if *une* is nucleus by reduction, *la* is nucleus by substitution with *une*. But here again, as in English, the pronominal class of *une* and the adnominal one are not identical (only singulars; cf. Grevisse, 1955: 305-461):

PRONOMINAL	ADNOMINAL
aucun	*aucun*
nul	*nul*
pas un	*pas un*
plus d'un	*plus d'un*
tel	*tel*
tout	*tout*
celui-ci	*ce*
quelqu'un	*quelque*
chacun	*chaque*
le mien etc.	*mon* etc.
que? quoi? lequel?	*quel ...?*
je ne sais qui	*je ne sais quel*
n'importe qui	*n'importe quel*
quiconque	*quelconque*
l'un	—
personne	—
il, elle	—
—	*maint*
—	*certain*
—	*le, la*

What is more, Frei's table of substitution (*la feuille* : *une feuille* : *une*) assigns *une* to the wrong class. If we enlarge it thus

La feuille suffit
Une feuille suffit
Les trois feuilles suffisent
Trois suffisent
Une suffit

we see that the ARTICLE *une* has perhaps[15] the same form-class as *la*, but the NUMERAL-NOUN[16] *une* belongs with *trois* (and can even be accompanied by *la*, as in *Les trois suffisent* : *L'une suffit*.[17] *Une* is therefore a representative of at least two homonyms, belonging to different classes.

3.2.1 As with the analysis of derivates, then, (above §2.2) here too it seems more promising to use a technique which involves no reduction. Applying our 'controlled substitution', e.g., to French, we try first to keep unchanged the article, substituting the rest of the nominal phrase. We find that

La vieille *femme*
La *femme*
La vieille
La belle etc.

belong in the SAME form-class: that is, all of them function as nouns in the sentence. Temporary conclusion: *la* is responsible for the appurtenance to the form-class, it is therefore the nucleus.

3.2.2 If we reverse now the operation, in order to verify our conclusion, we have:

la femme
une femme
Ø femme

The question asked now is whether substitution or elimination of the article changes the form class or the phrase. Does *Ø femme*, for example, substitute in every environment with *la femme* or with *une femme*? If it does not, then our first conclusion is reaffirmed: change of article may change form-classes; existence of the noun is not sufficient; the article must be the nucleus. If however there is such substitution, then the article

[15] We shall try to show below §3.2.2.1ff. that sometimes the morphs called articles do not even substitute for one another.

[16] Cf. Grevisse, 1955: §408.

[17] In a private communication of July 1973 Prof. Frei argues that *une* is not a numeral, but an article, since we have *les trois feuilles* but never **l'une feuille*. In my opinion *un*(*e*) does belong with *trois*, *quatre* etc. as a numeral noun, but is replaced by *seul*(*e*) as an adnominal numeral: *les trois feuilles* : *la seule feuille*. In this respect *l'un*(*e*) resembles *chac-un*(*e*), *quelqu'-un*(*e*), for **chacune feuille* etc. is also impossible. For a similar use of homonymity, this time between a personal pronoun and an article, cf. the example for *het* in De Groot, 1949: 112.

does not determine the behaviour of its noun; something must have gone wrong with our former conclusion.

The answer is not simple; in fact it would require a checking of a good part of the syntax of the language in question. In this paper we can only sketch a few features in some languages, that go in the direction we look for.

3.2.2.1 Beginning with an impressionistic view of the noun + article constructions, we notice a certain paradox: in many languages adjectives, adverbs, infinitives etc. can take the place of what is called a nominal phrase, if only they are accompanied by an article. Thus in French *la* (*une*) *vieille*; *le quoi*; *le quand*; *le pouvoir* etc. In German *der böse*, *ein böser*, *die bösen*, *das Verstehen*, *das Unten* etc. We find the same in Greek, old and new, in Hebrew and other languages.[18] The paradox is in that the status of 'noun' is given not by the presence of the noun itself but by that of the article, considered in general to be the satellite of the noun (imagine a verbal phrase without a verb!). This gives the article a very special status indeed. On the other hand it is generally maintained, justly or not, that a noun is a noun even without an article.

In the literature concerned with articles we do find sometimes the view (or hint) that substitution among articles and Ø is not free. Löfstedt (1942: 365) cites Brugmann as making unsubstitutability the basis of the definition of the article: "... wie Brugmann hervorhebt, ist nämlich ein wirklicher Artikel (gr. ὁ ἄνθρωπος, nhd. der Mann) stets obligatorisch ...".[19]

For French a similar hint is to be found in Frei (1956: 165), who says that in a normal sentence no noun phrase like *eau chaude* can stand without an "indiquant", i.e., the article *l'* or *de l'*, or some other indicator as *ma*, *ta*, *sa*, or *cette*. In a more general statement, Bally, discussing the

[18] In (formal) English, substantivation of almost all non-nouns demands addition of *one*(*s*): *the old one*(*s*), *the one below* etc. The same phenomenon is to be observed in Nurage (Ethiopia; see Polotsky, 1951: 28f.), only there are at least two 'propwords' in the language, one definite, the other indefinite, thus uniting the functions of article and propword. One is tempted to say that such a propword deprives the article of its substantivizing force, so that in these languages it cannot be nucleus of the phrase. But this is not correct. The article is NECESSARY for substantivizing all these expressions; in the case of adverbs (*the ups and downs* etc.) it is even SUFFICIENT; with the adjective, relative clause and prepositional expression, however, it has to be completed by *one*. This phenomenon has to do rather with the relation between nouns and these expressions than with the one between article and noun.

[19] Brugmann, 1904: 13. Unfortunately I could not reach this publication. Cf. also Löfstedt 1942: 359, 364, 368, 372.

"actualisateurs" necessary for making nouns (and verb-stems) enter a sentence, says "Les actualisateurs sont donc des ligaments grammaticaux"; his examples are *ce livre*, *le livre* (and for verb-stem *regn-ait*) (1950: §§110-21, §468, §470).

Another hint is to be found in Damourette and Pichon (1911-1930: tome II, §490), who speak of "l'article qui confère à ce substantif sa pleine substantivité ...".

3.2.2 A very pertinent statement appears in Gleason (1961: 156 f.). Speaking of the English 'function words' *the*, *a*, *some*, he says:

> The greater number of nominal constructions contain one of these, almost always as the first member.[20] They serve to signal the presence of the nominal and to mark the limit of the construction. In these functions, all three are equivalent. The differences mark either the subclass of the nominal phrase (see 14.4) or the position of the nominal in the discource. In rather rare cases none of these grammatical factors exerts control, and the occurrence of one rather than another may signal a meaning difference. This is very much less common than it is popularly supposed, or than what the traditional grammars would lead one to believe. The pairs of contrasting sentences commonly advanced to illustrate the difference in meaning (*The man came* : *A man came*) are, for the most part, either artificial or cited out of context. Much of the grammatical control over the articles operates within stretches larger than single sentences, and so easily escapes the notice of grammarians.

In our terms what Gleason says is that in most environments (here, sentence patterns) the appearance of a noun does not suffice to determine the syntactic behavior of its phrase: an article (or Ø article) is needed to render the phrase a member of the form-class in question. Gleason's further statement, which goes hand in hand with the above, is that the 'articles' constitute no form-class (or paradigm, according to Hjelmslev) at all. In spite of their 'place' before the noun in English or French.[21] they do not stand in substitution to each other. Each of them looks rather as a 'part of speech' distinct from the other 'articles'.

Staying in the cadre of English, it would be interesting to examine Sayo Yotsukura's dissertation (1970) *The Articles in English*. Pages 13-43 of the book are dedicated to a review of former research. On p. 23 Carlota S. Smith (1964: 41-43) is cited, saying that "... subject and predicate noun-

[20] For this cf. Fries, 1952: 212. In his corpus (telephone conversations) only 9 percent of the nouns were without any article.

[21] In a language like Albanian, where the indefinite article *një* stands before the noun, but the definite article is a suffix, no such 'place' is there to influence our thinking.

phrases in predicate sentences must be at certain degrees of definiteness" (examples there). On p. 34 it is shown that *the girl* is excluded in a sentence like *There is not a girl to beat her*, in the same way that *a son* is excluded in *He was the son of a taylor* (1970: 36). For other cases where *the* is obligatory see *ibid.*, 97.[22]

In the cadre of her own work, Yotsukura shows (1970: 78) that certain nouns, e.g., *group*, *fool*, etc., when serving as subject, cannot appear with *Ø* article. On the other hand, other nouns, e.g., *gold*, can have *Ø*:- *Gold is expensive*. This distinction is that between what is called COUNTABLES AND MASS-NOUNS (also in German, Seiler, 1960: 15, but not necessarily elsewhere: e.g., Modern Greek or Hebrew do not seem to have it, at least not concerning the use of articles). What is the meaning of this divergent behavior for the problem of the article as nucleus? one could say that it is the lexical subclass of the noun which conditions the behavior of the articles, not the syntactic role of the nucleus. But one should note that this would not be sufficient: in certain roles in the sentences a countable like *fool* must have precisely the *Ø* article (which was excluded in the subject role): *Go away, you fool!* Consequently countables, at least, are not nuclei of their phrases, the article doing the job. As for mass nouns — they may have an altogether different behavior, and may need to be classed as a different 'part of speech', like proper names. Or else they may differ from countables in certain details only (as regards the articles they accompany in different syntactic positions). In that case the two kinds of nouns may be considered as two subclasses of satellites to the articles.

3.2.2.3 In Modern Hebrew Rosén offers now easier access to the checking of the status of articles, thanks to an extensive Appendix (1966: 195-302) called "Sentence Patterns". A look at the 21 Hebrew sentence patterns shows the following cases:

(1) Only indefinite noun possible — patterns 1, 3 (an article would make them phrases).

(2) Only definite noun possible — pattern 8 (otherwise a conditional clause); patterns 2, 11, 16 (otherwise nominal phrases).

(3) Substitution definite : indefinite — all other occurrences of nouns.

Case 3 proves neither nuclearity of the article nor the opposite. But cases 1, 2 show well that there are syntactic positions where either the

[22] To these one may add evidence derived from theoretical work. See, e.g., Bloch and Trager (1942: 54f.) where the articled noun is not substitutable with any single morpheme, or Harris (1957), where the sentence is constantly represented as TNV (T = *a*, *the*) not, as with others, as NV alone.

article or its absence is an essential part of the form-class having the privilege of occurrence in this position.

3.2.2.4 A last example will be the Cappadocian Modern Greek dialect. Among the 8 models (sentence patterns) that I posited for that dialect (Barri, 1971: 148-277) one finds:

(1) Only indefinite (or Ø) noun phrase possible — model I and the predicate of II.[23]

(2) Only definite nominal possible — subject of models II, III and possibly also subject of VII and VIII.

The positions left for free substitution of articles are then quite low in number. This situation had brought me to recognise in Cappadocian two different form classes ('parts of sentences'): (a) definite nominal phrase and (b) indefinite nominal phrase. I now believe that taking the article as nucleus would be a better solution. We may thus posit two different 'articular parts of speech': (1) one having a definite 'article' as nucleus, and as satellites: nouns, adjectives, relative clauses, adverbs and certain pronouns. (2) One having an indefinite or Ø article as nucleus, with satellites like nouns, adjectives, certain other pronouns etc.

3.2.3 From the diachronic point of view, obligatory use of articles in certain sentence patterns and constructions may constitute a precious tool for determining the exact point where, e.g., the Romance demonstrative *ille* becomes an article. As we saw above (§3.2.2.1) Brugmann already sensed this. Still his suggestion has not cleared the doubts for later scholars like Hjelmslev (1937c: 196) and Löfstedt (1942). The novelty in our suggestion is that for us OBLIGATORY USE does not mean just obligations imposed by context or situation in which the article must be regularly used (Löfstedt, 1942: 372); it means obligatory appearance in constructions. This feature, we maintain, lends itself more easily to objective verification. It can thus help us solve this kind of problem in many languages.

3.2.4 If we accept the above evidence for the nuclearity of articles, at least in the languages discussed, our notion of the sentence or its parts will be very different from the conventional one. According to this

[23] A similar statement is to be found in H. J. Polotsky's *Ägyptisch-Koptisch, Verbalsystem und Syntax* §6.2.2.1 (to be published soon by Mouton; the author has kindly let me cite from the manuscript): "Die ... Kategorie ... des reinen Nomens (mit 'Nullartikel') ist jedoch vom Nominalsatz ausgeschlossen."

new view, the role of what we call nouns is mostly as a satellite to this or that article; only a small minority of their occurrences serve as nuclei, e.g., French *Il est étudiant*. Paradoxically, it seems that precisely in these occurrences — the only ones where the noun acts alone — its meaning approaches that of the adjective.[24] It may prove necessary for certain languages to go bach to the old Greco-Roman grammatical inventory, where the adjective and the noun were bound together in the category of *nomen*.

4. UNILATERAL AND BILATERAL DEPENDENCES

Stating our method to cover all cases, we can now say: in every subordinative construction the part which determines the belonging of the whole to a given form-class will be called NUCLEUS, the other part — SATELLITE. Certain kinds of constructions may be reduced to their nuclei (we may call those UNILATERAL DEPENDENCES).Other kinds do not offer that possibility (BILATERAL DEPENDENCES, e.g., compounds, derivatives, article + noun and others); they have to be analysed for nucleus and satellite by the more general technique of CONTROLLED SUBSTITUTION.

In view of the difference between unilateral and bilateral constructions, and seeing the relative difficulty in identifying the parts of the latter, one could perhaps ask: To what extent can we speak of nucleus and datellite in both kinds of construction? Perhaps we should limit this kind of analysis to the former alone? My answer is that we would thus make life easier for the linguist, but we would lose more than we gain: there would remain only one, relatively easy, technique (reduction) — but one would lose the possibility of describing under the same heading two sub-kinds of the same phenomenon: the analysability of subordinative constructions into a more central part and a less central one.

REFERENCES

Bally, Ch.
1950 *Linguistique généŕale et linguistique française*, 3e éd. (Berne, A. Francke).
Barri, N.
1971 *Essai de syntaxe structurale du dialecte néo-grec de Cappadoce* (thèse Paris-Sorbonne)
Bazell, C. E.
1952 Review of A. W. de Groot, *Structurele Syntaxis*, *Archivum Lingusticum* 4, 68-71.

[24] Some will call this 'generic use'.

Benveniste, E.
1967 "Fondements syntaxiques de la composition nominale", *BSL* 62, 15-31.
Bloch, Bernard, and G. L. Trager
1942 *Outline of Linguistic Analysis* (Baltimore, Linguistic Society of America).
Bloomfield, L.
1935 *Language*, British edition (London, Allen and Unwin).
Brockelmann, C.
1908 *Grundriss der vergleichenden Grammatik der semitischen Sprachen* I (Berlin, Reuther and Reichard).
Brugmann, K.
1904 "Die Demonstrativpronomina der indogermanischen Sprachen", *Abh. d. philol.-hist. Kl. der Königl. Sächs. Gesellschaft der Wissenschaften* XXII:6 (Leipzig)
1905-06 "Zur Wortzusammensetzung in den idg. Sprachen", *IF* 18, 59-76.
Damourette, J., et E. Pichon
1911-30 *Des mots à la pensée; Essai de grammaire de la langue française* (dans *Collection des linguistes contemporains*) (Paris).
De Groot, A. W.
1949 *Structurele Syntaxis* (Den Haag, Servire).
Frei, H.
1929 *La grammaire des fautes* (Paris-Genève-Leipzig, Geuthner-Kundig-Harrassowitz).
1956 "Caractérisation, indication, spécification", *For Roman Jakobson* (The Hague, Mouton), 161-68.
1968a "Noyau et satellite en morphologie", *Wortbildung, Syntax und Morphologie* (*Festschrift H. Marchand*) (The Hague, Mouton). 65-66.
1968b "Syntaxe et méthode en linguistique synchronique", *Enzyklopädie der Geisteswissenschaftlichen Arbeitsmethoden* 4: *Methoden der Sprachwissenschaft* (München-Wien, R. Oldenbourg Verlag).
Fries, C. C.
1952 *The Structure of English* (London, Longmans).
Garvin, P. L.
1972 *On Linguistic Method*, Selected Papers (The Hague, Mouton).
Gauger, H. M.
1968 "Determinatum und Determinans im abgeleiteten Wort?", *Festschrift Marchand*, 93-108.
Gleason, H. A.
1961 *An Introduction to Descriptive Linguistics*, revised ed. (British edition, repr. 1970) (New York, Holt, Rinehart and Winston).
Grevisse, M.
1955 *Le bon usage*, 6e ed. (Gembloux, Duculot).
Harris, Z. S.
1957 "Co-occurrence and Transformation in Linguistic Structure", *Language* 33, 283-340 = Fodor and Katz, 1964: 155-210.
Haywood, J. A., and H. M Nahmad
1962 *A New Arabic Grammar* (London, Lund, Humphries and Co.).
Hjelmslev, L.
1937c "La nature du pronom", *Mélanges de linguistique et de philologie offerts à Jacq. van Ginneken*, 51-58. = *Travaux du Cercle Linguistique de Copenhague* XII (1959) (*Essais linguistiques de L. Hjelmslev*), 2e éd. (1970), 192-98.
1961 *Prolegomena to a Theory of Language*, revised English ed. (repr. Madison, The Univ. of Wisconsin Press, 1963, tr. by F. J. Whitfield).

Jacobi, H.
1897 *Compositum und Nebensatz* (Bonn, Friedrich Cohen).
Kuryłowicz, J.
1935 *Études indoeuropéennes* I (Kraków).
Löfstedt, E.
1942 "Zur Vorgeschichte des romanischen Artikels", *Syntactica* I, 2. Aufl. (Lund, Gleerup), 358-82.
Marchand, H.
1960 *The Categories and Types of Present-day English Word Formation* (Wiesbaden, O. Harrassowitz).
Martinet, A.
1967 *Éléments de linguistique générale*, nouvelle éd., 4e tirage (Paris, A. Colin).
Palmer. H. E., and F. G. Blandford
1939 *A Grammar of Spoken English* (Cambridge, Heffer).
Pike, K. L., and E. V. Pike
1947 "Immediate Constituents of Mazateco Syllables", *IJAL* 13, 78-91.
Pittman, R. S.
1948 "Nuclear Structures in Linguistics", *Language* 24, 287-92 = Joos, 1957: 275-78.
Polotsky, H J.
1951 "Notes on Gurage Grammar", *Notes and Studies Published by the Israel Oriental Society* 2 (1951) (= Polotsky, *Collected Papers* [Jerusalem, The Magnes Press, 1971], 519-73).
Rosén, H. B.
1966 *Ivrit Tova* [Good Hebrew], 2nd revised ed. (Jerusalem, Kiryat Sepher).
Saussure, F. de
1915 *Cours de linguistique générale* (réimpr. 1965) (Paris, Payot).
Schwyzer, E.
1959 *Griechische Grammatik* I, 3. unv. Auflage (München, Beck).
Seiler, H.
1960 *Relativsatz, Attribut und Apposition* (Wiesbaden, O. Harrassowitz).
Smith, C. S.
1964 "Determiners and Relative Clauses in a Generative Grammar of English", *Language* 40, 37-52.
Yotsukura, S.
1970 *The Articles in English* (The Hague, Mouton).
Wright, W.
1955 *A Grammar of the Arabic Language*, 3rd ed. (Cambridge, University Press).

Two readers mentioned above for a few articles:

Fodor, J. A., and J. J. Katz (eds.)
1964 *The Structure of Language* (Englewood Cliffs, N.J., Prentice-Hall).
Joos, M. (ed.)
1957 *Readings in Linguistics* (Washington, American Council of Learned Societies.)